Practice: 512 - Forage and Biomass Planting

Scenario: #1 - Native Perennial Grass (one species)

Scenario Description:

Establish or reseed a single species of adpated perennial native grass. The seedbed shall be prepared using typical tillage techniques for conventional drilling or no-till seeding of native grasses. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, and seeding. This practice may be utilized for organic or regular production.

Before Situation:

A 40 acre dryland wheat or corn field is experiencing degraded plant conditions due to soil loss from long term sheet and rill erosion. Soil health is poor and organic matter has been depleted due to the long term conventional tillage cropping history. Additionally water quality has suffered due to the excessive loading of soil and/or nutrients leaving the field.

After Situation:

The field is established to a single species of native grass (eg. switchgrass) for forage or biomass production which has solved soil erosion concerns while additionaly acting as a buffer to areas to improve water quality.

Scenario Feature Measure: Acres of Grass Planted

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $7,934.42 **Scenario Cost/Unit:** $198.36

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	40	$358.80
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$13.37	40	$534.80
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	40	$219.20
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	$6.83	40	$273.20
Foregone Income						
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$144.36	26.4	$3,811.10
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$115.67	13.6	$1,573.11
Materials						
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	800	$432.00
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	1	$64.09
Test, Soil Test, Standard	299	Includes materials, shiping, labor, and equipment costs.	Each	$9.77	1	$9.77
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$146.34	1	$146.34

Practice: 512 - Forage and Biomass Planting

Scenario: #2 - Warm Season Introduced Perennial Warm Season Grasses. Seeding

Scenario Description:

Establish by seeding a single species of adpated perennial warm season introduced grass . The seedbed shall be prepared using typical tillage techniques for conventional drilling or no-till seeding of introduced grasses. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, and seeding. This practice may be utilized for organic or regular production where applicable.

Before Situation:

A 40 acre dryland wheat or corn field is experiencing degraded plant conditions due to soil loss from long term sheet and rill erosion. Soil health is poor and organic matter has been depleted due to the long term conventional tillage cropping history. Additionally water quality has suffered due to the excessive loading of soil and/or nutrients leaving the field.

After Situation:

The field is established to a single species of introduced warm season grass (eg. bermudagrass) for forage or biomass production which has solved soil erosion concerns while additionaly acting as a buffer to areas to improve water quality.

Scenario Feature Measure: Acres of Grass Planted

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $10,101.31 **Scenario Cost/Unit:** $252.53

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$17.20	40	$688.00
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	40	$358.80
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	40	$219.20
Foregone Income						
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$271.04	2	$542.08
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$115.67	30	$3,470.10
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$144.36	8	$1,154.88
Materials						
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	40	$2,563.60
Test, Soil Test, Standard	299	Includes materials, shiping, labor, and equipment costs.	Each	$9.77	1	$9.77
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	20	$10.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$60.08	1	$60.08

Practice: 512 - Forage and Biomass Planting

Scenario: #3 - Warm Season Introduced Perennial Warm Season Grasses: Sprigging

Scenario Description:

Establish bermudagrass by sprigging adpated varieties. The seedbed shall be prepared using typical tillage techniques for conventional sprigging of introduced warm season grasses. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, and seeding. This practice may be utilized for organic or regular production where applicable.

Before Situation:

A 40 acre dryland wheat or corn field is experiencing degraded plant conditions due to soil loss from long term sheet and rill erosion. Soil health is poor and organic matter has been depeted due to the long term conventional tillage cropping history. Additionally water quality has suffered due to the excessive loading of soil and/or nutrients leaving the field.

After Situation:

The field is established to a single species of introduced warm season grass (eg. bermudagrass) for forage or biomass production which has solved soil erosion concerns while additionaly acting as a buffer to areas to improve water quality.

Scenario Feature Measure: Acres of Grass Planted

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $13,076.11 **Scenario Cost/Unit:** $326.90

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	40	$358.80
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	40	$219.20
Ground sprigging	1101	Includes costs for equipment, power unit and labor.	Acre	$81.04	40	$3,241.60
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$115.67	30	$3,470.10
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$144.36	8	$1,154.88
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$271.04	2	$542.08
Materials						
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	40	$2,563.60
Test, Soil Test, Standard	299	Includes materials, shiping, labor, and equipment costs.	Each	$9.77	1	$9.77
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	800	$432.00
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$60.08	1	$60.08

Practice: 512 - Forage and Biomass Planting

Scenario: #4 - Warm Season Introduced Perennial Warm Season Grasses. Seeding with Lime

Scenario Description:

Establish by seeding a single species of adpated perennial warm season introduced grass . The seedbed shall be prepared using typical tillage techniques for conventional drilling or no-till seeding of introduced grasses. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, lime, lime application and seeding. This practice may be utilized for organic or regular production where applicable.

Before Situation:

A 40 acre dryland wheat or corn field is experiencing degraded plant conditions due to soil loss from long term sheet and rill erosion and has a high pH as identified with a soil test. Soil health is poor and organic matter has been depeted due to the long term conventional tillage cropping history. Additionally water quality has suffered due to the excessive loading of soil and/or nutrients leaving the field.

After Situation:

The field is established to a single species of introduced warm season grass (eg. bermudagrass) for forage or biomass production which has solved soil erosion concerns while additionaly acting as a buffer to areas to improve water quality.

Scenario Feature Measure: Acres of Grass Planted

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $14,863.31 **Scenario Cost/Unit:** $371.58

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$17.20	40	$688.00
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$8.18	40	$327.20
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	40	$358.80
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	40	$219.20
Foregone Income						
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$144.36	8	$1,154.88
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$115.67	30	$3,470.10
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$271.04	2	$542.08
Materials						
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	40	$2,563.60
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	800	$432.00
Test, Soil Test, Standard	299	Includes materials, shiping, labor, and equipment costs.	Each	$9.77	1	$9.77
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	$100.34	40	$4,013.60
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$60.08	1	$60.08

Practice: 512 - Forage and Biomass Planting

Scenario: #5 - Warm Season Introduced Perennial Warm Season Grasses: Sprigging with Lime

Scenario Description:

Establish bermudagrass by sprigging approved varieties. The seedbed shall be prepared using typical tillage techniques for conventional sprigging of introduced warm season grasses. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep,lime, lime application, tillage, and seeding. This practice may be utilized for organic or regular production where applicable.

Before Situation:

A 40 acre dryland wheat or corn field is experiencing degraded plant conditions due to soil loss from long term sheet and rill erosion and has a high pH as identified with a soil test. Soil health is poor and organic matter has been depeted due to the long term conventional tillage cropping history. Additionally water quality has suffered due to the excessive loading of soil and/or nutrients leaving the field.

After Situation:

The field is established to a single species of introduced warm season grass (eg. bermudagrass) for forage or biomass production which has solved soil erosion concerns while additionaly acting as a buffer to areas to improve water quality.

Scenario Feature Measure: Acres of Grass Planted

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $17,416.91 **Scenario Cost/Unit:** $435.42

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Ground sprigging	1101	Includes costs for equipment, power unit and labor.	Acre	$81.04	40	$3,241.60
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$8.18	40	$327.20
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	40	$219.20
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	40	$358.80
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$115.67	30	$3,470.10
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$144.36	8	$1,154.88
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$271.04	2	$542.08
Materials						
Test, Soil Test, Standard	299	Includes materials, shiping, labor, and equipment costs.	Each	$9.77	1	$9.77
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Introduced, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$64.09	40	$2,563.60
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	$100.34	40	$4,013.60
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	800	$432.00
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$60.08	1	$60.08

Practice: 512 - Forage and Biomass Planting

Scenario: #6 - Cool Season Introduced Perennial Grass. Seeding

Scenario Description:

Establish by seeding a single species of adpated perennial cool season introduced grass . The seedbed shall be prepared using typical tillage techniques for conventional drilling or no-till seeding of introduced grasses. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep, tillage, and seeding. This practice may be utilized for organic or regular production where applicable.

Before Situation:

A 40 acre dryland wheat or corn field is experiencing degraded plant conditions due to soil loss from long term sheet and rill erosion. Soil health is poor and organic matter has been depeted due to the long term conventional tillage cropping history. Additionally water quality has suffered due to the excessive loading of soil and/or nutrients leaving the field.

After Situation:

The field is established to a single species of introduced cool season grass (eg. Tall Fescue) for forage or biomass production which has solved soil erosion concerns while additionaly acting as a buffer to areas to improve water quality.

Scenario Feature Measure: Acres of Grass Planted

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $9,267.71 **Scenario Cost/Unit:** $231.69

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	40	$219.20
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$17.20	40	$688.00
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	40	$358.80
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$115.67	30	$3,470.10
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$271.04	2	$542.08
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$144.36	8	$1,154.88
Materials						
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	800	$432.00
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Test, Soil Test, Standard	299	Includes materials, shiping, labor, and equipment costs.	Each	$9.77	1	$9.77
One Species, Cool Season, Introduced Perennial Grass	2313	Introduced, cool season perennial grass. Includes material and shipping only.	Acre	$32.72	40	$1,308.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$60.08	1	$60.08

Practice: 512 - Forage and Biomass Planting

Scenario: #7 - Cool Season Introduced Perennial Grass. Seeding with Lime

Scenario Description:

Establish by seeding a single species of adpated perennial cool season introduced grass . The seedbed shall be prepared using typical tillage techniques for conventional drilling or no-till seeding of introduced grasses. This scenario assumes fertilizer, seed, equipment and labor for seed bed prep,lime, lime application, tillage, and seeding. This practice may be utilized for organic or regular production where applicable.

Before Situation:

A 40 acre dryland wheat or corn field is experiencing degraded plant conditions due to soil loss from long term sheet and rill erosion and has an identified pH issue identified with a soil test. Soil health is poor and organic matter has been depeted due to the long term conventional tillage cropping history. Additionally water quality has suffered due to the excessive loading of soil and/or nutrients leaving the field.

After Situation:

The field is established to a single species of introduced cool season grass (eg. Tall Fescue) for forage or biomass production which has solved soil erosion concerns while additionaly acting as a buffer to areas to improve water quality.

Scenario Feature Measure: Acres of Grass Planted

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $13,608.51 **Scenario Cost/Unit:** $340.21

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$17.20	40	$688.00
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.48	40	$219.20
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$8.97	40	$358.80
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$8.18	40	$327.20
Foregone Income						
FI, Wheat Dryland	1963	Dryland Wheat is Primary Crop	Acre	$115.67	30	$3,470.10
FI, Corn Dryland	1959	Dryland Corn is Primary Crop	Acre	$144.36	8	$1,154.88
FI, Soybeans Dryland	1961	Dryland Soybeans is Primary Crop	Acre	$271.04	2	$542.08
Materials						
One Species, Cool Season, Introduced Perennial Grass	2313	Introduced, cool season perennial grass. Includes material and shipping only.	Acre	$32.72	40	$1,308.80
Test, Soil Test, Standard	299	Includes materials, shiping, labor, and equipment costs.	Each	$9.77	1	$9.77
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	$100.34	40	$4,013.60
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.54	800	$432.00
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Nitrogen (N), Urea	71	Price per pound of N supplied by Urea. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.64	800	$512.00
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$60.08	1	$60.08